

REMARKS/ARGUMENTS

By this Amendment, claims 18, 20, 23 and 25-26 are amended and claims 27-37 are added. Claims 18-37 are pending.

Favorable reconsideration is respectfully requested in view of the foregoing amendments and the following remarks.

Claims 18, 20 and 25-26 are amended for improved clarity. Support for the amendments to claims 25-26 is apparent in the original disclosure at, e.g., Example 27 at page 27, line 11.

Claim 23 is amended to more fully claim the full scope of the invention. Support for the amendments to claim 23 is apparent in the original disclosure at, e.g., Table 1, Example 14 (40.7% and 40.3%) and Table 9, Example 28 (40.2%).

Claims 18-24 stand rejected under 35 U.S.C. § 102(b), as allegedly being anticipated by U.S. Patent No. 5,858,457 to Brinker et al. This rejection is respectfully traversed.

As noted in the specification at page 2, line 24 to page 3, line 8:

[B]oth the Brinker et al. and Liu et al. patents fail in several aspects identified by the present inventors as being critical to forming films acceptable for use in electronics applications. Neither patent teaches the use of reagents acceptable for use in the electronics industry. Both recite the use of a cationic, quaternary ammonium surfactant which is required to template the ordered pore structure of this class of materials. Such surfactants have halide counter ions which are corrosive to the metals and some barrier materials used in the preparation of integrated circuits. Although Liu et al. teaches performing ion exchange to remove the halide, it is not clear from Liu et al. how much, if any, of the halide remains within the film after ion exchange. Moreover, the ion exchange step increases the complexity and expense of the method.

Base claim 18 is directed to a ceramic film produced by a specified process, wherein the ceramic film has a dielectric constant below 2.3, and a metal content of less than 500 ppm. The

Application No. 10/046,434
Amendment Dated August 14, 2003
Reply to Office Action of May 28, 2003

Office Action asserts that these claimed properties would be inherent features of the films of Brinker et al. because the process of Brinker et al. is identical to the claimed process. However, Brinker et al. does not teach the desirability of such properties nor the means for achieving them. In particular, Brinker et al. does not disclose or suggest minimizing the amount of metal in the film, nor how to do so.

Moreover, Brinker et al. teaches the use of: (1) mineral acid catalysts (e.g., HCl at column 5, lines 10-15); and (2) cationic and anionic surfactants in addition to non-ionic surfactants without appreciating the advantages of using only the latter.

Thus, products of Brinker et al. "do not necessarily possess the characteristics of the claimed products," particularly a dielectric constant below 2.3, and a metal content of less than 500 ppm. See Office Action at Page 3, line 1, citing *In re Best*, 195 USPQ 430, 433 (CCPA 1977).

Accordingly, reconsideration and withdrawal of the rejection of claims 18-24 as being anticipated by Brinker et al. are respectfully requested.

Claims 18-24 stand rejected under 35 U.S.C. § 102(b), as allegedly being anticipated by U.S. Patent No. 5,645,891 to Liu et al. This rejection is respectfully traversed.

The Office Action employs the same analysis with Liu et al. as it does with Brinker et al. That is, the Office Action asserts that the claimed properties would be inherent features of the films of Liu et al. because the process of Liu et al. is identical to the claimed process. However, Liu et al., like Brinker et al., does not teach the desirability of such properties nor the means for achieving them. In particular, Liu et al. does not disclose or suggest minimizing the amount of

metal in the film, nor how to do so. Moreover, Liu et al. teaches the use of cationic surfactants (see, e.g., column 4, line 60) without appreciating the advantages of using only non-ionic surfactants. Thus, the products of Liu et al. "do not necessarily possess the characteristics of the claimed products," particularly a dielectric constant below 2.3, and a metal content of less than 500 ppm.

Accordingly, reconsideration and withdrawal of the rejection of claims 18-24 as being anticipated by Liu et al. are respectfully requested.

Claims 25-26 stand rejected under 35 U.S.C. § 103(a), as allegedly being unpatentable over Liu et al. This rejection is respectfully traversed.

Claims 25-26 patentably distinguish over Liu et al. for at least the same reasons as base claim 18 (noted above), from which claims 25-26 depend.

Claim 26 further distinguishes over Liu et al. by specifying that the film does not include pores sufficiently ordered in a plane of the substrate such that an X-ray diffraction pattern of said film shows a diffraction peak. Figures 4B, 6C and 8B of Liu et al. show diffraction peaks.

Claim 25 further distinguishes over Liu et al. by specifying that the film includes pores sufficiently ordered in a plane of the substrate that an X-ray diffraction pattern of said film shows a diffraction peak at a d spacing greater than about 44 Å. Figures 4B, 6C and 8B of Liu et al. show diffraction peaks at d spacings less than 44 Å (38.5, 34 and 41 Å, respectively).

Accordingly, reconsideration and withdrawal of the rejection of claims 25-26 as being obvious over Liu are respectfully requested.

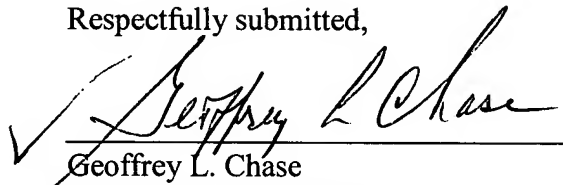
Application No. 10/046,434
Amendment Dated August 14, 2003
Reply to Office Action of May 28, 2003

Claims 27-37 are added to more fully claim the full scope of the invention. These product claims largely correspond to product-by-process claims 18-26. Support for new claims 36-37 is apparent in the original disclosure at, e.g., Tables 7 and 15. No new matter is added.

For at least the reasons set forth above, it is respectfully submitted that the above-identified application is in condition for allowance. Favorable reconsideration and prompt allowance of the claims are respectfully requested.

Should the Examiner believe that anything further is desirable in order to place the application in even better condition for allowance, the Examiner is invited to contact Applicants' undersigned attorney at the telephone number listed below.

Respectfully submitted,



Geoffrey L. Chase
Registration No. 28,059

Air Products and Chemicals, Inc.
7201 Hamilton Blvd.
Allentown, Pennsylvania 18195-1501
(610) 481-7265